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ABSTRACT

Although many studies report on the parent/child bond and its negative correlation with substance use, few researchers have examined the interaction between the parent/child relationship and parent substance use to predict adolescent use. In this study, 763 adolescents, 11-15 years old, along with their parents and siblings, participated in a seven-year longitudinal study of family influence on adolescent substance use. In the study's initial years, 34 percent of the participants withdrew. The findings emphasized the importance of the interaction between parent use and the parent/adolescent relationship. A good parent/adolescent relationship did not always protect the child from substance use. If the parent, particularly the mother, had a good relationship with the adolescent and that parent used substances, the child was more likely to use drugs. Likewise, female adolescents were more likely to imitate paternal use and non-use of a substance if they had a good, rather than a poor, relationship with their father. Additionally, parental abstinence did not always ensure abstinence in the child. An adolescent with a poor relationship with a non-using parent was as likely to use substances as a using parent in a poor parent/adolescent relationship. (RJM)

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Concordance Between Parent and Adolescent Substance Use: Tests of a Social Learning Model

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An effect of parent's use on adolescent's use of that same substance has been shown in numerous studies (e.g., Andrews, et al., 1993; Ary et al., 1993; Hops, et al, 1993; Kandel & Andrews, 1987; Brook et al., 1985). This effect has often been attributed to adolescent modeling or imitation of parental behavior; i.e. social learning theory (Bandura & Walters, 1963). However, according to Bandura & Walters (1963), modeling only occurs if the individual is valued. We can assume that the adolescent will value a parent if they get along well with that parent. Therefore, it is hypothesized that the adolescent will be more likely to imitate the substance use of the parent if the adolescent gets along well with the parent than if the adolescent has a poor relationship with the parent.

Although much attention has been paid to the parent/child bond and it's negative correlation with substance use (Andrews, Hops, Ary, Lichtenstein, and Tildesley, 1991; Kandel, Kessler, Marguiles, 1978; See Hawkins, 1985, for review), studies examining the interaction between the parent/child relationship and parent substance use in the prediction of adolescent use are rare. It is generally assumed that poor family relationships amplify the deleterious effect of parent use on adolescent use. Additionally, a direct test of this facet of social learning theory as it is related to the modeling of parental substance use has not been previously conducted.

METHOD

A sample of 763 adolescents, 11 through 15 years of age, their parents and siblings, were recruited as part of a 7-year longitudinal study of family influence on adolescent substance use. Families were recruited from moderate-sized northwestern urban areas via newspaper, television, and radio announcements and flyers placed at schools.

Attrition was high in the initial years. Between T1 and T4, 34% of the sample left the study. At T4, the sample size was 530 and has clearly stabilized since then, with a T7 sample size of 512. Consistent with the literature (e.g. Newcomb & Bentler, 1988; Kandel, 1984), those who left the study were more likely to use substances at T1, more likely to be female, and had mothers who were less well educated. Adolescents who lived with single mothers were also more likely to drop out of the study. There were no differences on race or father's education.

Although substance users disproportionately dropped out of the study, the substance use of adolescents remaining in the study appeared to be similar to the substance use of adolescents in the region. We compared our T4 data from 8th and 11th graders with data obtained from all 8th and 11th graders in Oregon (Oregon Employment Division Research and Statistics, 1989). Monthly use was comparable across all substances with the exception of cigarettes in which use was significantly lower for our sample.

The data presented in this paper is based on the questionnaire assessments from T1 to T6, obtained from both parents, as well as the target adolescent. At T1, 49% of the sample were male, 92% were Caucasian and 49% were from single parent households. By T6, 46% of the sample were male, 87% were Caucasian and 50% were from single parent households.

Measures.

Adolescent substance use. An ordinal scale measuring extent of current alcohol, cigarette, and marijuana use was created from the adolescent's self report of current (rate of use in the last 24 hours, month and 6 months) and lifetime use (an ordinal variable ranging from "never tried" and "used to" to currently use the substance "at least once a day"). The resulting 5-point ordinal scale was: Never, Never at previous assessments, plus 0/month in the last 6 months; Quit: Report of quit, plus 0/month; Experimenter: Current User, plus less than 4/month; Regular: current user, between 4 and 29/month; and Heavy: Current user, more than 30 month. For this paper, users of cigarettes were considered regular users and above, while users of alcohol and marijuana were considered experimenters and above.

Parent Substance Use. Parents reported on their own substance use. Parent cigarette use was measured by a 4-point ordinal scale: never smoked/quit, smoke less than a pack a day, smoke about a pack a day, and smoke more than a pack a day. Mother and father alcohol and marijuana use both were measured by a 5-point ordinal scale. The responses for alcohol use were

never drunk/quit, drink occasionally, drink less than once a week, drink at least once a week, and drink at least once a day. The responses for marijuana use were never used/quit, use occasionally, use less than once a day, use about once a day, and use more than once a day. For the primary results presented in this paper, extent of use is ignored and parental use/non-use is the variable of interest.

Parent/adolescent relationships. Two constructs measuring mother/adolescent and father/adolescent family relationships were created. The indicators for the father/adolescent construct were father and adolescent report on the Cohesion and Conflict subscales of the Family Environment Scale (FES; Moos, 1974), adolescent report on the Appraisal of Father subscale of the Conflict Behavior Questionnaire (CBQ; Prinz, Foster, Kent & O'Leary, 1979) and the adolescent's report on the Perceived Supportiveness of Parents scale (Jessor, 1987). The construct measuring the mother/adolescent relationship was similar, but consisted of mother report on the FES and the adolescent's report on the Appraisal of Mother substance of the CBQ.

RESULTS & DISCUSSION

Descriptive Analyses

Adolescent Use. At T1, 51.9%, 14.3%, and 26.4% were considered users of alcohol, cigarettes, and marijuana respectively. The proportions increased with time to 75.9%,

22.7%, and 35.9% at T4; and 81.2%, 28.2%, and 41.3% at T6. The majority of alcohol (T1: 51.9%; T4: 62.8%; T6: 60.5%) and marijuana users (T1: 66.8%; T4: 65.8%; T6: 72.1%) were experimenters at all three assessments. Adolescent use was moderately correlated across substances, but decreased with time [.35 (alcohol with cigarettes) to .52 (marijuana with cigarettes) at T1; .19 (alcohol with cigarettes) to .39 (marijuana with cigarettes) at T4; and .17 (alcohol with cigarettes) to .39 (marijuana with cigarettes) at T6].

Parent Use. At T1, 79.0% of mothers and 75.4% of fathers drank alcohol; 31.1% of mothers and 33.7% of fathers smoked cigarettes, and 22.2% of mothers and 19.7% of fathers used marijuana. At T4, 66.8% of mothers and 61.9% of fathers drank alcohol, 25.4% of mothers and 25.3% of fathers smoked cigarettes, and 14.8% of mothers and 15.6% of fathers smoked marijuana. At T6, 63.8% of mothers and 62.6% of fathers drank alcohol, 8.6% of mothers and 25.8% of fathers smoked cigarettes, and 12.8% of mothers and 12.9% of fathers smoked marijuana. In two-parent homes, correlations across parents were moderate, averaging .60 for alcohol, .45 for cigarettes, and .70 for marijuana.

Interaction between Parent Use and Family Relationships

In preliminary analyses using logistic regression, predicting adolescent use from parent use, the parent/adolescent relationship, and the interaction between parent use and the parent/adolescent relationship, the interaction between parent use and the parent/adolescent relationship was often significant.

However, there were no significant interactions with age. Therefore, this variable was not considered in further analyses examining the concordance between parent and adolescent use. A previous study with this sample found gender specific modeling effects (e.g. Hops et al., 1993). Analyses, therefore, were conducted separately by gender.

Concordance between Parent Use and Teen Use

To test the hypothesis that concordance between parent and adolescent use would occur if the adolescent had a good relationship with the parent, but would not occur if the adolescent had a poor relationship with the parent, separate crosstabulations between parent use and adolescent use were done with data from adolescents with good relationships with the parent and with data from adolescents with poor relationships with the parent. For each gender, the mother and father relationship variables were dichotomized into good relationships with the parent and bad relationships with the parent, by establishing cutoffs at the top third and bottom third of the gender specific distributions. The data from adolescents in the middle third of the distribution were not used in these analyses. For illustrative purposes, only the results from three assessments, T1, T4, and T6, will be presented in this paper. The Chi-squares, measuring the degree of concordance between parent and adolescent use, for each of these two groups across the three assessments are given in Table 1 for mothers and Table 2 for fathers.

Insert Tables 1 and 2 about here

Concordance between mother and teen use. As Table 1 indicates, imitation of the mother's substance use appears to be a function of the relationship that the adolescent has with the mother. In 11 out of 18 pairs of analyses, the relation between adolescent use and mother use was significant if the adolescent had a good relationship with their mother, but was not significant if the adolescent had a poor relationship, far exceeding that expected by chance. The probability of this joint event occurring by chance alone, with an alpha of .05 and a beta of .20 is .01, or 1 in 100 occurrences.

In 3 pairs of analyses (male alcohol use at T1, female alcohol use at T4, and male cigarette use at T4), the adolescent appeared to imitate the substance use of the mother regardless of the quality of the relationship. In 4 pairs of analyses, male marijuana use at T1, female cigarette use at both T4 and T6, and female cigarette use at T6, there was not a significant relation between adolescent and mother use for either those who had a good relationship or those who had a poor relationship. There did not appear to be gender differences in either concordance or lack of concordance.

Concordance between father and teen use. The results examining the relationship between adolescent and father

substance use are not as clear. However, as Table 2 indicates, in 5 out of 18 pairs of analyses, concordance was in the expected direction (concordance with a good relationship; lack of concordance with a poor relationship), again exceeding that expected by chance. Four of these pairs in which concordance was in the expected direction used data obtained from females. Although a direct comparison across genders was not possible, these results suggested that female adolescents were more likely to model the substance use of their fathers if their relationship was good than were male adolescents.

In contrast to the imitation of mothers' substance use, in 4/18 pairs of analyses (2 with females and 2 with males), adolescent use was congruent with fathers' use if adolescents had a poor relationship with their father, but not if they had a good relationship with their father.

In 9 out of 18 of the pairs analyses, there was not a significant relation between adolescent and father use for either those who had a good relationship or those who had a poor relationship. However, these analyses were not as powerful as those with data from mothers, as the sample of fathers was half the size as the sample of mothers.

Examination of Percentages

The percentage of adolescent use for each of the four categories (parent use/nonuse by good/poor relationships) for those pairs of analyses which supported the hypothesis are given in Table 3.

Insert Table 3 about here

With the exception of T1, all percentages are in the expected direction; adolescents are more likely to model the substance use of their parent (both use and non-use) if the relationship is good than if it is poor. The protective effect of good family relationships when parents are not substance users was clearly expected and has been reported in the literature (Brook et al., 1984; Tec, 1970).

However, these results also suggest that adolescents are more at risk if the parent (particularly the mother) uses and if the relationship with the mother is good than if it is poor. Is this true? Most of the users of alcohol and marijuana in these analyses were experimenters (< 4/month); most of the cigarette users smoked less than 1 1/2 packs a month. Perhaps parental use plus good family relationships lead to an experimental use of substances. Further analyses (See Table 4) supported this hypotheses. The results of these analyses suggested that, with one exception, the risk of heavy (> 30 times per month) or problem use (had trouble with police, missed school or work, or had money problems associated with substance use) was greater, or was not different, if the parent used substances and had a poor relationship than if they used substances and had a good relationship. However, if fathers' used marijuana, adolescents were more likely to become heavy or problem users of marijuana if

the relationship was good than if it was poor.

These results emphasize the importance of the interaction between parent use and the parent/adolescent relationship. First, these results indicate that a good parent/adolescent relationship is not always a protective factor. If the parent, particularly the mother, has a good relationship with the adolescent and that parent also uses substances, that parent is also more likely to use. Second, parental abstinence is not always a protective factor. An adolescent who has a poor relationship with a non-using parent is as likely to use as an adolescent who has a poor relationship with using parents.

Although the primary results presented in this paper are from a cross-sectional examination of the data, interactions between parent use and the parent/child relationship have also been found in prospective analyses suggesting that adolescent use is the result of the parent use/parent relationship interaction rather than the discrepancy between parent and adolescent use leading to conflict in the relationship.

This study is a rather simple test of a very specific hypothesis. It does not consider the covariation between the two independent variables (e.g. that the substance use of the parent can affect the parent/adolescent relationship) or that other factors are influential in determining the substance use of the adolescent (e.g modeling of peer use). Additionally, it does not examine other aspects of parenting skills, such as parental monitoring. However, the results regarding the influence of the

mothers' use on adolescents' use as a function of the mother/adolescent relationship are quite clear. Adolescents are more likely to imitate the mothers' use, as well as non-use, of a substance if they have a good relationship with their mother, than if they have a poor relationship. Additionally, female adolescents, in particular, are more likely to imitate the father's use and non-use of a substance if they have a good, rather than poor, relationship with their father.

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Table 1

Concordance Between Mother Use and Teen Use

	Poor relationship with mother	Good relationship with mother
	T1	
Alcohol		
Male	8.81**	6.48*
Female	1.49	5.80*
Cigarettes		
Male	.03	14.83***
Female	.67	12.19***
Marijuana		
Male	2.79	.59
Female	.95	27.86***
	T4	
Alcohol		
Male	.29	10.64**
Female	9.18**	10.14**
Cigarettes		
Male	5.53*	5.19*
Female	3.19	1.16

table continues

	Poor relationship with mother	Good relationship with mother
Marijuana		
Male	.25	7.57**
Female	.87	6.42*
	T6	
Alcohol		
Male	.57	8.68**
Female	1.23	9.17**
Cigarettes		
Male	.19	7.07**
Female	.00	1.43
Marijuana		
Male	.18	3.98*
Female	.40	1.92

* $p < .05$. ** $p < .01$. *** $p < .001$.

Table 2

Concordance Between Father Use and Teen Use

	Poor relationship with father	Good relationship with father
	T1	
Alcohol		
Male	1.81	.89
Female	2.10	3.31
Cigarettes		
Male	.72	.20
Female	.74	2.00
Marijuana		
Male	1.09	1.58
Female	.19	24.13***
	T4	
Alcohol		
Male	1.51	.98
Female	5.03*	1.80
Cigarettes		
Male	.92	4.89*
Female	1.04	7.91**

table continues

	Poor relationship with father	Good relationship with father
Marijuana		
Male	1.43	.89
Female	.04	.02
	T6	
Alcohol		
Male	3.97*	1.70
Female	.12	4.73*
Cigarettes		
Male	3.12	.20
Female	5.29	12.92***
Marijuana		
Male	4.34*	1.32
Female	9.56**	.28

* $p < .05$. ** $p < .01$. *** $p < .001$.

Table 4

% of Adolescents Who Use by Parent Use and Relationship with Parent

	Parent uses		Parent doesn't use	
	Poor relationship	Good relationship	Poor relationship	Good relationship
T1				
Mothers				
Alcohol				
Females	70.8	52.0**	57.1	25.9*
Cigarettes				
Males	15.8	16.2	17.1	0.0***
Females	31.0	20.0	24.0	2.1***
Marijuana				
Females	50.0	51.9	40.0	8.2***
Fathers				
Marijuana				
Females	36.4	60.0	42.1	2.9***
T4				
Mothers				
Alcohol				
Males	72.1	86.0	59.1	51.1

table continues

	Parent uses		Parent doesn't use	
	Poor relationship	Good relationship	Poor relationship	Good relationship
Marijuana				
Males	41.7	85.7	34.0	32.9
Females	41.2	58.3	29.1	23.0
Fathers				
Cigarettes				
Males	28.6	42.9	26.7	10.3
Females	21.1	33.3	9.5	2.5

T6

Mothers				
Alcohol				
Males	73.3	92.9*	63.2	58.3
Females	82.9	88.6	70.0	52.4
Cigarettes				
Males	27.3	50.0	21.1	11.4
Marijuana				
Males	25.0	75.0	35.6	27.1
Fathers				
Alcohol				
Females	66.7	80.0	60.0	37.5

Table 5

% of Adolescents Who Are Heavy/Problem Users by T6 by Parent Use and Relationship with Parent

	Parent uses		Parent doesn't use	
	Poor relationship	Good relationship	Poor relationship	Good relationship
Mothers				
Alcohol	32.1	16.8***	17.0	17.0
Cigarettes	32.5	33.8	31.3	11.0***
Marijuana	25.5	18.5	18.5	6.1***
Fathers				
Alcohol	20.8	16.5	21.2	6.3
Cigarettes	35.7	21.9	26.0	10.4**
Marijuana	3.8	23.8*	14.9	5.6*

* $p < .05$. ** $p < .01$. *** $p < .001$.